Do-it-yourself service precautions

If you perform maintenance yourself, be sure to follow the correct procedure given in these sections.

ltems		Parts and tools
Battery condition	(→P. 507)	Warm waterBaking sodaGreaseConventional wrench (for terminal clamp bolts)
Brake fluid level	(→P. 506)	 FMVSS No.116 DOT 3 or SAE J1703 brake fluid Rag or paper towel Funnel (used only for adding brake fluid)
Engine coolant level	(→P. 504)	 "Toyota Super Long Life Coolant" or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite and non-borate coolant with long-life hybrid organic acid technology. For the U.S.A.: "Toyota Super Long Life Coolant" is pre-mixed with 50% coolant and 50% deionized water. For Canada: "Toyota Super Long Life Coolant" is pre-mixed with 55% coolant and 45% deionized water. Funnel (used only for adding engine coolant)

ltems		Parts and tools
Engine oil level	(→P. 499)	 "Toyota Genuine Motor Oil" or equivalent Rag or paper towel, funnel (used only for adding engine oil)
Fuses	(→P. 530)	• Fuse with same amperage rating as original
Tire inflation pressure	(→P. 519)	Tire pressure gaugeCompressed air source
Headlight aim	(→P. 547)	Phillips-head screwdriver
Radiator and condenser	(→P. 506)	—
Washer fluid	(→P. 510)	Water washer fluid containing anti- freeze (for winter use)Funnel

A CAUTION

The engine compartment contains many mechanisms and fluids that may move suddenly, become hot, or become electrically energized. To avoid death or serious injury, observe the following precaution.

■ When working on the engine compartment

- Keep hands, clothing, and tools away from the moving fan and engine drive belt.
- Be careful not to touch the engine, radiator, exhaust manifold, etc. right after driving as they may be hot.
- Do not leave anything that may burn easily, such as paper or rags, in the engine compartment.
- Do not smoke, cause sparks or expose an open flame to fuel or the battery. Fuel and battery fumes are flammable.
- Be extremely cautious when working on the battery. It contains poisonous and corrosive sulfuric acid.

A CAUTION

■ When working near the electric cooling fan or radiator grille

Be sure the engine switch is OFF.

With the engine switch in IG-ON mode, the electric cooling fan may automatically start to run if the air conditioning is on and/or the coolant temperature is high. $(\rightarrow P.506)$

■ Safety glasses

Wear safety glasses to prevent flying or falling material, fluid spray, etc. from getting in the eves.

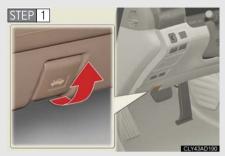


∧ NOTICE

■ If you remove the air cleaner

Driving with the air filter removed may cause excessive engine wear due to dirt in the air. Also a backfire could cause a fire in the engine compartment.

Release the lock from the inside of the vehicle to open the hood.



Pull the hood release lever.

The hood will pop up slightly.



Lift the hood catch and lift the hood.



■ Pre-driving check

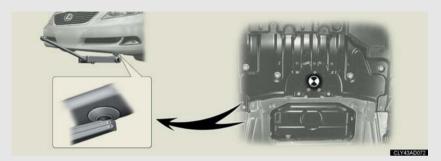
Check that the hood is fully closed and locked.

If the hood is not locked properly, it may open while the vehicle is in motion and cause an accident, which may result in death or serious injury.

Positioning the jack

When raising your vehicle with the jack, position the jack correctly. Improper placement may damage your vehicle or cause injury.

■ Front



Rear



A CAUTION

■ When raising your vehicle

Make sure to observe the following to reduce the possibility of death or serious injury.

- Do not put any part of your body or get underneath the vehicle supported only by the jack.
 - Always use automotive jack stands or a solid, level, surface.
- Do not start the engine while the vehicle is supported by the jack.
- Stop the vehicle on level firm ground, firmly set the parking brake and put the shift lever in P.

A CAUTION

- Make sure to set the jack properly at the jack point.
 Raising the vehicle with an improperly positioned jack will damage the vehicle and may cause the vehicle to fall off the jack.
- Do not raise the vehicle while someone is in the vehicle.
- When raising the vehicle, do not place any objects on top of or underneath the jack.
- Vehicles with electronically modulated air suspension: Be sure to turn off the height control and stop the engine. Otherwise, the vehicle height may change in the automatic leveling function. (→P.168)

4-3. Do-it-yourself maintenance **Engine compartment**



- Battery
- $(\to P.507)$
- 2 Engine oil level dipstick
 - $(\rightarrow P.499)$
- Engine oil filler cap
 - . (→P. 499)
- 4 Brake fluid reservoir
 - $(\to P.506)$
- 5 Washer fluid tank
- $(\to P.510)$

- 6 Electric cooling fans
- **7** Condenser $(\rightarrow P. 506)$
- **8** Radiator $(\rightarrow P. 506)$
- Engine coolant reservoir
 - $(\rightarrow P.504)$
- Fuse boxes $(\rightarrow P. 530)$

Engine compartment cover

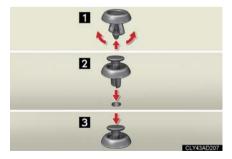
- Removing the engine compartment cover
- ➤ Outside



► Front



■ Installing the clips



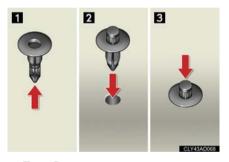
Battery cover

■ Removing the battery cover

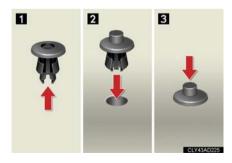


■ Installing the clips

► Type A



► Type B





↑ NOTICE

■ When installing the battery cover

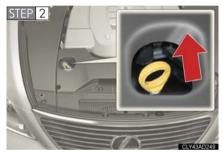
Securely install the cover over the battery. Failure to do so may cause water to enter the engine compartment when it rains or the vehicle is washed, resulting in a malfunction.

Engine oil

With the engine at operating temperature and turned off, check the oil level on the dipstick.

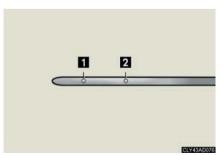
■ Checking the engine oil

Park the vehicle on level ground. After turning off the engine, wait a few minutes for the oil to drain back into the bottom of the engine.



Hold a rag under the end and pull the dipstick out.

- STEP 3 Wipe the dipstick clean.
- STEP 4 Reinsert the dipstick fully.
- STEP 5 Holding a rag under the end, pull the dipstick out and check the oil level.
- STEP 6 Wipe the dipstick and reinsert it fully.



Low
 Full

Adding engine oil



If the oil level is below or near the low level mark, add engine oil of the same type as already in the engine.



Make sure to check the oil type and prepare the items needed before adding oil.

Oil grade	ILSAC multi-grade engine oil
ltems	Clean funnel

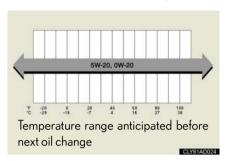
STEP 1 Remove the oil filler cap.

STEP 2 Add engine oil slowly, checking the dipstick.

STEP 3 Install the filler cap, turning it clockwise.

It takes about 1.6 qt. (1.5 L, 1.3 lmp. qt.) to raise the oil level from low to full on the dipstick.

■ Recommended viscosity



5W-20 or 0W-20

SAE 5W-20 or OW-20 motor oil may be used. However, SAE OW-20 is the best choice for fuel economy and good starting in cold weather.

■ How to read oil container labels

Some oil containers are labeled with ILSAC certification marks that help you to select the proper oil.



■ Engine oil consumption

- The amount of engine oil consumed depends on the oil viscosity, the quality of the oil and the way the vehicle is driven.
- More oil is consumed under driving conditions such as high speeds, frequent acceleration and deceleration.
- A new engine consumes more oil.
- When judging the amount of oil consumption, keep in mind that the oil may have become diluted, making it difficult to judge the true level accurately.
- Oil consumption: Max. 1.1 qt./600 miles, 0.9 lmp.qt./600 miles (1.0 L per 1000 km)
- If you consume more than 1.1 qt. (1.0 L, 0.9 lmp.qt.) every 600 miles (1000 km), contact your Lexus dealer.

■ After changing the engine oil (if equipped)

The oil change system should be reset. Perform the following procedures:

- Switch the display to the trip meter A when the engine is running. $(\rightarrow P. 127)$
- STEP 2 Turn the engine switch OFF.
- While pressing the trip meter reset button, set the engine switch to the IG-ON mode (but do not start the engine because otherwise the reset mode will be cancelled). Press and hold the button until the multi-information display indicates that the reset is compete.

CAUTION

■ Used engine oil

- Used engine oil contains potentially harmful contaminants which may cause skin disorders such as inflammation or skin cancer, so care should be taken to avoid prolonged and repeated contact. To remove used engine oil from your skin, wash thoroughly with soap and water.
- Dispose of used oil and filters only in a safe and acceptable manner. Do not dispose of used oil and filters in household trash, in sewers or onto the ground. Call your Lexus dealer, service station or auto parts store for information concerning recycling or disposal.
- Do not leave used engine oil within the reach of children.



NOTICE

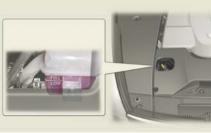
■ To prevent serious engine damage

Check the oil level on regular basis.

- When replacing the engine oil
 - Be careful not to spill engine oil on the vehicle components.
 - Avoid overfilling, or the engine could be damaged.
 - Check the oil level on the dipstick every time you refill the vehicle.
 - Be sure the engine oil filler cap is properly tightened.

Engine coolant

The coolant level is satisfactory if it is between the FULL and LOW lines on the reservoir when the engine is cold.



- Reservoir cap
- 2 FULL
- 3 LOW

If the level is on or below the LOW line, add coolant up to the FULL line. $(\rightarrow P.600)$



■ If the coolant level drops within a short time after replenishing

Visually check the radiator, hoses, coolant reservoir cap, drain cock and water pump.

If you cannot find a leak, have your Lexus dealer pressure test the cap and check for leaks in the cooling system.

■ Coolant selection

Only use Toyota Super Long Life Coolant or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology.

U.S.A.: Toyota Super Long Life Coolant is a mixture of 50% coolant and 50% deionized water. (Enabled: -31°F [-35°C])

Canada: Toyota Super Long Life Coolant is a mixture of 55% coolant and 45% deionized water. (Enabled: -44°F [-42°C])

For more details about engine coolant, contact your Lexus dealer.



A CAUTION

■ When the engine is hot

Do not remove the coolant reservoir cap.

The cooling system may be under pressure and may spray hot coolant if the cap is removed, causing burns or other injuries.

♠ NOTICE

■ When adding engine coolant

Coolant is neither plain water nor straight antifreeze. The correct mixture of water and antifreeze must be used to provide proper lubrication, corrosion protection and cooling. Be sure to read the antifreeze or coolant label.

■ If you spill coolant

Be sure to wash it off with water to prevent it damaging parts or paint.

Radiator and condenser

Check the radiator and condenser, and clear any foreign objects. If either of the above parts are extremely dirty or you are not sure of their condition, have your vehicle checked by your Lexus dealer.



A CAUTION

■ When the engine is hot

Do not touch the radiator or condenser, as they may be hot and you may be burned.

Brake fluid

■ Checking fluid level



The brake fluid level should be between the MAX and MIN lines. on the tank

Make sure to check the fluid type and prepare the necessary items.

Adding fluid

FMVSS No.116 DOT 3 or SAF J1703 brake fluid Fluid type Items Clean funnel

■ Brake fluid can absorb moisture from the air.

Excess moisture in the fluid can cause a dangerous loss of braking efficiency. Use only newly opened brake fluid.

A CAUTION

■ When filling the reservoir

Take care because brake fluid can harm your hands or eyes and damage painted surfaces.

If fluid gets in your eyes, flush your eyes with clean water immediately.

If you still experience discomfort, see a doctor.



NOTICE

■ If the fluid level is low or high

It is normal for the brake fluid level to go down slightly as the brake pads wear or when the fluid level in the accumulator is high.

If the reservoir needs frequent refilling, it may indicate a serious problem.

Battery

Check the battery as follows.

■ Battery exterior

Make sure that the battery terminals are not corroded and that there are no loose connections, cracks, or loose clamps.

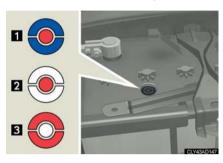


- 1 Terminals
- Hold-down clamp

■ Checking battery condition

STEP 1 Remove the cover located over the battery. $(\rightarrow P. 497)$

STEP 2 Check the battery condition using the indicator color.



- Blue: Good condition
- White: Charging is necessary. Have the vehicle inspected by your Lexus dealer.
- Red: Not working properly have the battery checked by your Lexus dealer.

STEP 3 Install the cover over the battery. $(\rightarrow P. 497)$

■ Before recharging

When recharging, the battery produces hydrogen gas which is flammable and explosive. Therefore, before recharging:

- If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
- Make sure the power switch on the charger is off when connecting and disconnecting the charger cables to the battery.

A CAUTION

■ Chemicals in the battery

A battery contains poisonous and corrosive sulfuric acid and may produce hydrogen gas which is flammable and explosive. To reduce the risk of death or serious injury, take the following precautions while working on or near battery:

- Do not cause sparks by touching the battery terminals with tools.
- Do not smoke or light a match near the battery.
- Avoid contact with eyes, skin and clothes.
- Never inhale or swallow electrolyte.
- Wear protective safety glasses when working near the battery.
- Keep children away from the battery.

■ Where to safely charge the battery

Always charge the battery in an open area. Do not charge the battery in a garage or closed room where there is not sufficient ventilation.

■ How to recharge the battery

Only perform a slow charge (5 A or less). The battery may explode if charged at a quicker rate.

■ Emergency measures regarding electrolyte

- If electrolyte gets in your eyes Flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If possible, continue to apply water with a sponge or cloth while traveling to the nearest medical facility.
- If electrolyte gets on your skin Wash the affected area thoroughly. If you feel pain or burning, get medical attention immediately.
- If electrolyte gets on your clothes
 It can soak through clothing on to your skin. Immediately take off the clothing and follow the procedure above if necessary.
- If you accidentally swallow electrolyte

 Drink a large quantity of water or milk. Follow with milk of magnesia, beaten raw
 egg or vegetable oil. Get emergency medical attention immediately.



■ When recharging the battery

Never recharge the battery while the engine is running. Also, be sure all accessories are turned off.

■ When replacing the battery

Replace the battery with a battery of the same size.

Installing a battery of a different size will prevent the cover from being properly installed over the battery. This may cause water to enter the engine compartment when it rains or the vehicle is washed, resulting in a malfunction.

For more information about replacing the battery, contact your Lexus dealer.

Washer fluid



If any washer does not work or the warning message appears on the multi-information display, the washer tank may be empty. Add washer fluid.



NOTICE

■ Do not use any fluid other than washer fluid

Do not use soapy water or engine antifreeze instead of washer fluid.

Doing so may cause streaking on the vehicle's painted surfaces.

■ Diluting washer fluid

Dilute washer fluid with water as necessary.

Refer to the freezing temperatures listed on the washer fluid tank.

Maintenance and care

■ Checking tires

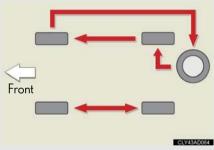


- 1 New tread
- 2 Tread wear indicator
- **W**orn tread

The location of tread wear indicators is shown by the TWI or Δ marks, etc., molded on the sidewall of each tire.

Check spare tire condition and pressure if not rotated.

■ Tire rotation



Rotate the tires in the order shown.

Lexus recommends tire rotation in accordance with the maintenance schedule to equalize tire wear and extend tire life.

■ The tire pressure warning system

Your Lexus is equipped with a tire pressure warning system that uses tire pressure warning valves and transmitters to detect low tire inflation pressure before serious problems arise. $(\rightarrow P. 572, 577)$

Installing tire pressure warning valves and transmitters

When replacing tires or wheels, tire pressure warning valves and transmitters must also be installed. Tire pressure warning valves and transmitters can be installed in any of the following three ways:

- Tire pressure warning valves and transmitters can be removed from the old wheels and installed on the new wheels.
- When replacing only the tire, the tire pressure warning valve and transmitter already installed on the wheel does not need to be replaced.
- Replacing both a wheel and its tire pressure warning valve and transmitter.

When new tire pressure warning valves and transmitters are installed, new tire pressure warning valve and transmitter ID codes must be registered in the ECU and tire pressure warning system must be initialized.

Initializing the tire pressure warning system

- The tire pressure warning system must be initialized in the following circumstances:
 - When tire pressure warning valves and transmitters are replaced.
 - When driving with the tires inflated to a higher than standard tire pressure.

When the tire pressure warning system is initialized, the current tire pressure is set as the pressure benchmark.

■ How to initialize the tire pressure warning system

STEP 1 Park the vehicle in safe place and turn off the engine.

While the vehicle is moving, initialization is not performed.

STEP 2 Adjust the tire pressure to the specified pressure. $(\rightarrow P. 619)$

STEP 3 Start the engine.

Make sure to adjust the tire pressure to the specified level. The tire pressure warning system will operate based on this pressure level.



Press and hold the tire pressure warning reset switch for at least 3 seconds.

The tire pressure warning light will flash 3 times and a message will be shown on the multi-information display to indicate that initialization has started.

Wait a few minutes for the multi-information display to show the tire inflation pressures (5 tires), and turn the engine switch OFF.

Registering ID codes

The tire pressure warning valve and transmitter is equipped with a unique ID code. When replacing a tire pressure warning valve and transmitter, it is necessary to register the ID code of tire pressure warning valve and transmitter. Have the ID code registered by your Lexus dealer.

If the ID code is not registered, the system will not work properly. After more than 20 minutes, the tire pressure warning light blinks to indicate a system malfunction.

■ When to replace your vehicle's tires

Tires should be replaced if:

- You have tire damage such as cuts, splits, cracks deep enough to expose the fabric or bulges indicating internal damage
- A tire goes flat repeatedly or cannot be properly repaired due to the size or location of a cut or other damage

If you are not sure, consult with your Lexus dealer.

■ Tire life

Any tire over 6 years old must be checked by a qualified technician even if they have seldom or never been used or damage is not obvious.

■ If the tread wears down below 0.16 in. (4 mm) on snow tires

The effectiveness of snow tires is lost.

■ If the tire pressure warning reset switch is pressed while the vehicle is moving

Initialization will not be performed. Before performing initialization, stop the vehicle in a safe place and turn off the engine. $(\rightarrow P. 512)$

■ If you push the tire pressure reset switch accidentally

If initialization is performed, adjust the tire inflation pressure to the specified level and initialize the system again.

■ When the initialization of the tire pressure warning system has failed

Initialization can be completed in a few minutes. However, in the following cases, the settings has not been recorded and the system will not operate properly. If repeated attempts to record tire inflation pressure settings are unsuccessful, have the vehicle inspected by your Lexus dealer.

- When operating the tire pressure warning reset switch, the warning light does not flash and the setting message does not appear on the multi-information display.
- After driving for a certain period of time since the initialization has been completed, the warning light flashes.
- When the tire pressure warning valves and transmitter are removed from the wheel on occasions such as when replacing tires

The tire inflation pressure data updated before servicing is retained.

■ Routine tire inflation pressure checks

The tire pressure warning system does not replace routine tire inflation pressure checks. Make sure to check tire inflation pressure as part of your routine of daily vehicle checks.

■ Maximum load of tire

Check that the maximum load of the replaced tire is greater than 1/2 of the Gross Axle Weight Ratings (GAWR) of either the front axle or the rear axle, whichever is greater.

As for the maximum load of the tire, see the load limit at maximum cold tire inflation pressure mentioned on the sidewall of the tire, and as for the Gross Axle Weight Ratings (GAWR), see the Certification Label. $(\rightarrow P. 519, 619)$.

■ Tire types

1 Summer tires

Summer tires are high-speed performance tires best suited to highway driving under dry conditions. Since summer tires do not have the same traction performance as snow tires, summer tires are inadequate for driving on snow-covered or icy roads. For driving on snow-covered roads or icy roads, the use of snow tires is recommended. When installing snow tires, be sure to replace all four tires.

2 All season tires

All season tires are designed to provide better traction in snow and to be adequate for driving in most winter conditions, as well as for use year round. All season tires, however, do not have adequate traction performance compared with snow tires in heavy or loose snow. Also, all season tires fall short in acceleration and handling performance compared with summer tires in highway driving.

3 Snow tires

For driving on snow-covered roads or icy roads, we recommend using snow tires. If you need snow tires, select tires of the same size, construction and load capacity as the originally installed tires. Since your vehicle has radial tires as original equipment, make sure your snow tires also have radial construction. Do not install studded tires without first checking local regulations for possible restriction. Snow tires should be installed on all wheels. (\rightarrow P. 187)

■ Initializing the tire pressure warning system

Initialize the tires with the tire inflation pressure adjusted to the specified level.

■ Tire pressure warning system certification

For vehicles sold in the U.S.A.

NOTF:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTICE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC WARNING:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

► For vehicles sold in Canada

NOTF:

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

A CAUTION

■ Tire pressure warning system operation

The tire pressure warning system may not provide warning immediately if a tire bursts or if sudden air leakage occurs.

■ When inspecting or replacing tires

Observe the following precautions to prevent accidents. Failure to do so may cause damage to parts of the drive train, as well as dangerous handling characteristics, which may lead to fatal or injury accidents.

- Do not mix tires of different makes, models, tread patterns or tread wear.
- Do not use tire sizes other than those recommended by Lexus.
- Do not mix radial, bias-belted, or bias-ply tires.
- Do not mix summer, all season and winter tires.
- Do not use tires that have been used on another vehicle.
 Do not use tires if you do not know how they were used previously.

■ When initializing the tire pressure warning system

Do not push the tire pressure warning reset switch without first adjusting the tire inflation pressure to the specified level. Otherwise, the tire pressure warning light may not come on even if the tire inflation pressure is low, or it may come on when the tire not inflation pressure is actually normal.

⚠ NOTICE

Repairing or replacing tires, wheels and tire pressure warning valves and transmitters

- When removing or fitting the wheels, tires or the tire pressure warning valve and transmitter, contact your Lexus dealer as the tire pressure warning valve and transmitter may be damaged if not handled correctly.
- When replacing tires, make sure also to replace the tire pressure warning valve and transmitter grommets.

■ Do not use puncture sealant sprays to repair flats

Puncture sealant sprays may damage tire pressure warning valves and transmitters.

■ Driving on rough roads

Take particular care when driving on roads with loose surfaces or potholes. These conditions may cause losses in tire inflation pressure, reducing the cushioning ability of the tires. In addition driving on rough roads may cause damage to the tires themselves, as well as the vehicle's wheels and body.

■ If tire inflation pressures become low while driving

Do not continue driving, or your tires and/or wheels may be ruined.

4-3. Do-it-yourself maintenance

Tire inflation pressure

■ Tire inflation pressure

The recommended cold tire inflation pressure and tire size is displayed on the tire and loading information label. $(\rightarrow P. 619)$





■ Inspection and adjustment procedure



- 1 Tire valve
- Tire pressure gauge

- STEP 1 Remove the tire valve cap.
- STEP 2 Press the tip of the tire pressure gauge onto the tire valve.
- STEP 3 Read the pressure using the graduations of the gauge.
- STEP 4 If the tire inflation pressure is not within the recommended levels, adjust inflate the tire.

If you add too much air, press the center of the valve to lower.

- After completing the tire inflation pressure measurement and adjustment, apply soapy water to the valve and check for leakage.
- STEP 6 Reinstall the tire valve cap.

■ Tire inflation pressure check interval

You should check tire pressure every two weeks, or at least once a month. Do not forget to check the spare.

■ Effects of incorrect tire inflation pressure

Driving with incorrect tire pressure may result in the following:

- Reduced fuel efficiency
- Reduced driving comfort and tire life
- Reduced safety
- Damage to the drive train

If a tire needs frequent refilling, have it checked by your Lexus dealer.

■ Instructions for checking tire pressure

When checking tire inflation pressure, observe the following:

- Check only when the tires are cold.
 If your vehicle has been parked for at least 3 hours and has not been driven for more than 1 mile or 1.5 km, you will get an accurate cold tire inflation pressure reading.
- Always use a tire pressure gauge.
 The appearance of the tire can be misleading. In addition, tire inflation pressures that are even just a few pounds off can degrade ride and handling.
- Do not bleed or reduce tire inflation pressure after driving. It is normal for the tire inflation pressure to be higher after driving.
- Never exceed the vehicle capacity weight.
 Passengers and luggage weight should be placed so that the vehicle is balanced.

A CAUTION

■ Proper inflation is critical to save tire performance

Keep your tires properly inflated. Otherwise, the following conditions may occur and result in an accident causing death or serious injury.

- Excessive wear
- Uneven wear
- Poor handling
- Possibility of blowouts resulting from overheated tires
- Poor sealing of the tire bead
- Wheel deformation and/or tire separation
- A greater possibility of tire damage from road hazards



↑ NOTICE

■ When inspecting and adjusting tire pressure

Be sure to reinstall the tire valve caps.

Without the valve caps, dirt or moisture could get into the valve and cause air leakage, which could result in an accident. If the caps have been lost, replace them as soon as possible.

If a wheel is bent, cracked or heavily corroded, it should be replaced. Otherwise, the tire may separate from the wheel or cause loss of handling control.

■ Wheel selection

When replacing wheels, care should be taken to ensure that they are equivalent to those removed in load capacity, diameter, rim width, and offset.

Replacement wheels are available at your Lexus dealer.

Lexus does not recommend using:

- Wheels of different sizes or types
- Used wheels
- Bent wheels that have been straightened

■ Aluminum wheel precautions

- Use only Lexus wheel nuts and wrenches designed for use with your aluminum wheels.
- When rotating, repairing or changing your tires, check that the wheel nuts are still tight after driving 1000 miles (1600 km).
- Be careful not to damage the aluminum wheels when using tire chains.
- Use only Lexus genuine balance weights or equivalent and a plastic or rubber hammer when balancing your wheels.

■ When replacing wheels

The wheels of your Lexus are equipped with sensors that allow the tire pressure warning system sensors to provide advanced warning in the event of a loss in tire pressure. Whenever wheels are replaced, the tire pressure warning valves and transmitters must be switched over from the old wheels. $(\rightarrow P. 512)$



A CAUTION

■ When replacing wheels

- Do not use wheels that are a different size from those recommended in the Owner's Manual, as this may result in loss of handling control.
- Never use an inner tube in a leaking wheel which is designed for a tubeless tire. Doing so may result in an accident, causing serious injury or death.



∧ NOTICE

■ Replacing tire pressure warning valves and transmitters

- Because tire repair or replacement may affect the tire pressure warning valves and transmitters, make sure to have tires serviced by your Lexus dealer or other qualified service shop. In addition, make sure to purchase your tire pressure warning valves and transmitters at your Lexus dealer.
- Ensure that only Genuine Lexus wheels are used on your vehicle. Tire pressure warning valves and transmitters may not work properly with nonaenuine wheels.

Air conditioning filter

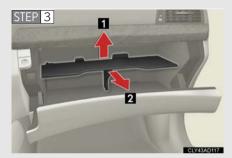
The air conditioning filter must be changed regularly to maintain air conditioning efficiency.

Front air conditioning filter

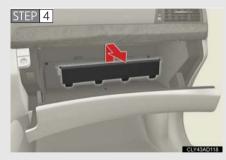
STEP 1 Set the air conditioning system to recirculated mode.

The air conditioning filter case cannot be removed with the system in the outside air mode.

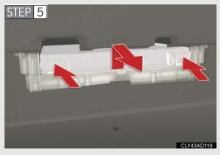
STEP 2 Turn the engine switch OFF.



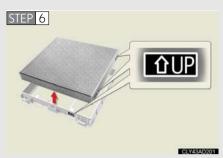
Open the glove box. Lift and remove the partition.



Remove the filter cover.



Remove the filter case.



Remove the air conditioning filter from the filter case and replace it with a new one.

The TUP marks shown on the filter and the filter case should be pointing up.

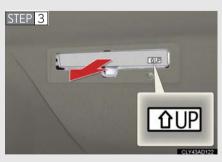
STEP 7 Reset the air conditioning filter maintenance date. $(\rightarrow P. 527)$

■ Rear air conditioning filter (if equipped)

STEP 1 Turn the engine switch OFF.



Open the trunk. Remove the filter cover.



Remove the air conditioning filter and replace it with a new one.

The TUP marks shown on the filter and the filter case should be pointing up.

■ Changing interval for the front air conditioning filter

Inspect and replace the air conditioning filter when a message is appeared on the multi-information display. In dusty areas or areas with heavy traffic flow, early replacement may be required.

■ If air flow from the vents decreases dramatically

The filter may be clogged. Check the filter and replace if necessary.

After changing the air conditioning filter

The air conditioning filter maintenance date should be reset. Perform the following procedures:

STEP 1 Turn the engine switch to IG-ON mode.

STEP 2 Push and hold the A/C OFF button for more than 4 seconds.

If the air conditioning filter maintenance date is not reset, a message will be shown on the multi-information display each time the engine is turned to IG-ON mode.

■ Rear air conditioning filter

If it is necessary to clean or replace the filter, contact your Lexus dealer.

■ Climate control seat filter

On vehicles with climate control seats, filters are installed in the seats. When it is necessary to clean or replace the filters, contact your Lexus dealer.



■ When using the air conditioning system

Make sure that a filter is always installed.

Using the air conditioning system without a filter may cause damage to the system.

4-3. Do-it-yourself maintenance

Electronic key battery

Replace the battery with a new one if it is discharged.

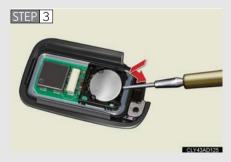
- You will need the following items:
 - Flathead screwdriver
 - Small Phillips-head screwdriver
 - Lithium battery (CR1632)
- Replacing the battery



Take out the mechanical key.



Remove the cover.



Remove the depleted battery.

Insert a new battery with the + terminal facing up.

■ If the electronic key battery is discharged

The following symptoms may occur.

- The smart access system with push-button start and wireless remote control will not function properly.
- The operational range is reduced.

■ Use a CR1632 lithium battery

- Batteries can be purchased at your Lexus dealer, jewelers, or camera stores.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the local laws.

■ When the card key battery needs to be replaced

The battery for the card key is available only at Lexus dealers. Your Lexus dealer can replace the battery for you.

A CAUTION

■ Removed battery and other parts

Keep away from children.

These parts are small and if swallowed by a child, they can cause choking.

↑ NOTICE

■ For normal operation after replacing the battery

Observe the following precautions to prevent accidents.

- Always work with dry hands.
 Moisture may cause the battery to rust.
- Do not touch or move any other components inside the remote control.
- Do not bend either of the battery terminals.

Checking and replacing fuses

If any of the electrical components do not operate, a fuse may have blown. If this happens, check and replace the fuses as necessary.

STEP 1 Turn the engine switch OFF.

STEP 2 Remove the engine compartment cover. $(\rightarrow P. 496)$

STEP 3 Open the fuse box cover.

► Engine compartment (type A)



Push the tabs in and lift the lid off.

► Engine compartment (type B)



Push the tabs in and lift the lid off.

► Driver's side instrument panel



Remove the lid.

► Passenger's side instrument panel



Remove the lid.

► Trunk



Remove the lid.

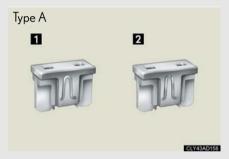
STEP 4 After a system failure, see "Fuse layout and amperage ratings" for details about which fuse to check. (→P. 534)



Remove the fuse with the pullout tool.

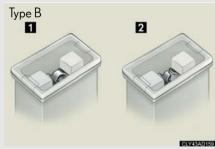
STEP 6 Check if the fuse has blown.

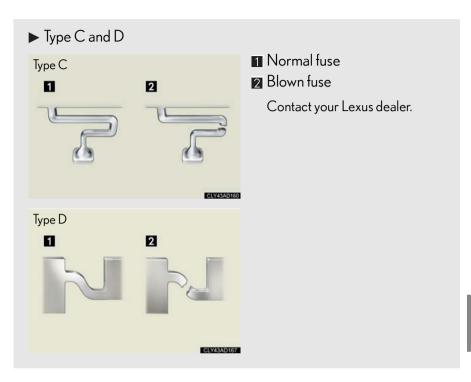
ightharpoonup Type A and B



- Normal fuse
- 2 Blown fuse

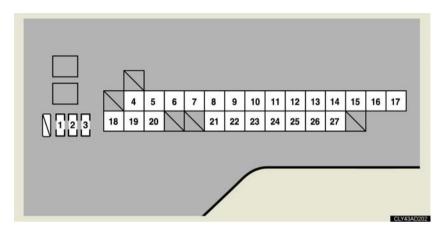
Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.





Fuse layout and amperage ratings

■ Engine compartment (type A)



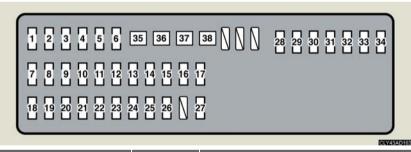
	Fuse	Ampere	Circuit
1	PTC HTR 3	25 A	PTC heater
2	PTC HTR1	25 A	PTC heater
3	VSSR	5 A	Electric power control system
4	ALT	180 A	AIR SUS, HTR, DEFOG, FAN NO.1, H-LP CLN, PTC HTR 2, PTC HTR, RR A/C, E/G RM1, D-J/B ALT, P-J/B ALT, LUG-J/B ALT
5	P-J/B ALT	60 A	P P/SEAT 1, P P/SEAT 2, A/C, RR SEAT, P-IG1-1, P-IG1-2, P-IG1-3, P-IG1-4, P-ACC, P-CIG, AIR SUS, climate control seat system
6	FAN NO.1	80 A	Electric cooling fans
7	E/G RM1	80 A	DEICER, WIP, E/G RM-IG1-1, E/G RM-IG1-2, NV-IR, FR FOG, FR CTRL ALT, ABS MTR1

	Fuse	Ampere	Circuit
8	D-J/B ALT	80 A	OBD, D P/SEAT, TI&TE, AM1, S/ROOF, D-IG1-1, D-IG1-2, D-IG1-3, D-IG1-4, D-ACC, PWR OUTLET, PANEL, climate control seat system
9	PTC HTR	60 A	PTC HTR 1, PTC HTR 3
10	LUG-J/B ALT	50 A	PTL, RL SEAT, B/ANC, FUEL OPN, RR S/SHADE, PSB, RR-IG1-1, RR-IG1-2, RR-IG1-3, RR-ACC, RR-CIG
11	RR A/C	30 A	Air conditioning system
12	AIR SUS	40 A	Electronically modulated air suspension system
13	HTR	50 A	Air conditioning system
14	NOISE FILTER	40 A	Condenser
15	DEFOG	40 A	Rear window defogger
16	PTC HTR 2	50 A	PTC heater
17	H-LP CLN	30 A	Headlight cleaner
18	EPS	80 A	EPS
19	EFI	80 A	VVT, ETCS, ABS MAIN 1, EDU1, EDU2, A/F, ECU-IG, IGN, INJ, P-J/B
20	E/G RM B	80 A	D/C CUT 1, FR CTRL BAT, EPS ECU, ABS MAIN 2, ABS MTR2, ST, H-LP RL, H-LP LL
21	EFI NO.1	40 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
22	E/G RM B2	30 A	ABS MAIN 3, EPS ECU, D/C CUT 2

4-3. Do-it-yourself maintenance

	Fuse	Ampere	Circuit
23	D-J/B B	40 A	D-DOOR 1, HAZ, D-DOOR 2, STR LOCK, STOP, SECURITY
24	LUG J/B B	40 A	STOP LP 1, STOP LP 2, TAIL, E-PKB, capacitor
25	P-J/B B	40 A	P DOOR 1, P RR DOOR, AM2, RADIO NO.1, P-D/C CUT, P DOOR 2, PMG, AMP
26	VGRS	40 A	VGRS
27	BAT VB	30 A	VSSR

■ Engine compartment (type B)



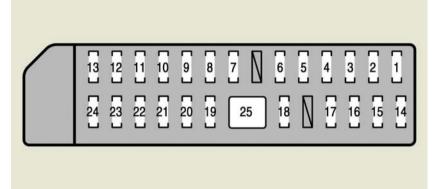
Fuse		Ampere	Circuit
1	DEICER	25 A	Windshield wiper de-icer
2	WIP	30 A	Windshield wiper
3	ABS MAIN 2	10 A	ABS, VSC, VDIM
4	IGCT1	25 A	Smart access system with push-button start
5	EPS ECU	10 A	EPS
6	FR CTRL BAT	30 A	Headlight high beams, horns

	Fuse	Ampere	Circuit
7	E/G RM-IG1-2	10 A	AFS, headlight high beams, parking lights, side marker lights, horns, alarm, windshield washer, exhaust system, headlight cleaner
8	E/G RM-IG1-1	10 A	Charging system, EPS, electric cooling fans, AFS
9	H-LP LL	15 A	Headlight low beams
10	ABS MAIN 1	10 A	Brake system, pre-collision seat belt
11	H-LP RL	15 A	Headlight low beams
12	ETCS	10 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
13	NVIR	10 A	Cruise control system
14	IGN	10 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, brake system, airbag system
15	ECU-IG	10 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, stop lights, pre-collision seat belt, charging system
16	D/C CUT1	30 A	ECU-B, D MPX-B 1, D MPX-B 2, P MPX-B, RR MPX-B 1, RR MPX-B 2, DOME
17	ECU-B	10 A	Headlight high beams, parking lights, horns, alarm, windshield washer, pre- collision seat belt, headlight cleaner
18	A/F	15 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, exhaust system

	Fuse	Ampere	Circuit
19	EDU2	25 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
20	FR CTRL ALT	20 A	Windshield washer, alarm, headlight cleaner, parking lights, side maker lights
21	EDU1	25 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
22	RELIEF VLV	10 A	Fuel system
23	FRFOG	15 A	Front fog lights
24	A/C W/P	10 A	Air conditioning system, electric cooling fans
25	H-LP LVL	10 A	Discharge headlights, headlight high beams, parking lights, side marker lights, horns, alarm, windshield washer
26	P-J/B	10 A	PIG2, PRR-IG2
27	INJ	10 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
28	D/C CUT 2	30 A	P MPX-B, RR ECU-B
29	ECU-B2	5 A	Brake system
30	ABS MAIN 3	10 A	Brake system, pre-collision seat belt
31	EFI MAIN 2	25 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, exhaust system
32	EFI MAIN	25 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, fuel system

	Fuse	Ampere	Circuit
33	EFI	10 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, fuel system
34	EFI-B	10 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
35	ST	30 A	Starter system
36	ABS MTR1	50 A	Brake system
37	ABS MTR2	50 A	Brake system
38	VVT	40 A	Multiport fuel injection system/ sequential multiport fuel injection sys- tem

■ Driver's side instrument panel

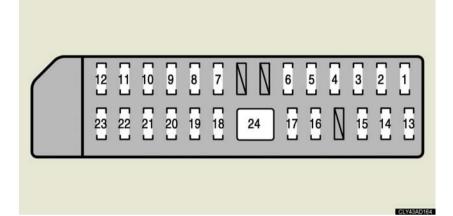


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Fuse		Ampere	Circuit
1	D-IG1-3	10 A	Automatic transmission, power door lock system, cruise control system, brake system, rear window defogger, moon roof, pre-collision seat belt, head restraints, power outlet, turn signal lights, climate control seat system, audio system
2	D-IG1-2	5 A	Cruise control system
3	D-IG1-4	15 A	Starter system, climate control seat system
4	D-IG1-1	5 A	Main body ECU, pre-collision seat belt, tilt and telescopic steering, starter system
5	PWR OUTLET	15 A	Power outlet
6	D-ACC	5 A	Power door lock system
7	S/ROOF	30 A	Moon roof
8	TI&TE	30 A	Tilt and telescopic steering

	Fuse	Ampere	Circuit
9	AM1	5 A	Power door lock system
10	OBD	10 A	On-board diagnosis system
11	D P/SEAT	30 A	Front seat adjustment
12	D S/HTR	20 A	Climate control seat system
13	D RR S/HTR	30 A	Climate control seat system
14	D MPX-B1	10 A	Meters and gauges, front seat adjust- ment, rear seat adjustment, tilt and telescopic steering, power door lock system, cruise control system
15	DOME	10 A	Interior lights, clock
16	D MPX-B 2	10 A	Audio system
17	PANEL	10 A	Fuel filler door opener, interior lights, audio system
18	SECURITY	5 A	Smart access system with push-button start, theft deterrent system
19	STR LOCK	20 A	Tilt and telescopic steering
20	DDOOR2	10 A	Power door lock system
21	HAZ	10 A	Turn signal lights
22	D RR DOOR	25 A	Interior lights, power door lock system, power windows
23	D DOOR1	25 A	Interior lights, outside rear view mir- ror, power door lock system, power windows, outside rear view mirror defogger
24	STOP	5 A	Stop lights
25	AMP	30 A	Audio system

■ Passenger's side instrument panel



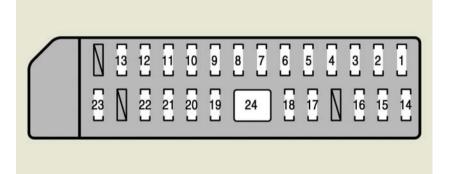
Circuit Fuse Ampere P-IG1-2 5 A Audio system 1 P-IG1-3 5 A 2 **VGRS** Audio system, navigation system, power door lock system, VGRS, air conditioning system, head restraints, 3 P-IG1-1 10 A pre-collision seat belt, intuitive parking assist, tire pressure warning system Climate control seat system P-IG1-4 10 A 4 15 A P-CIG Cigarette lighter 5 Audio system, navigation system, P-ACC 5 A clock, Lexus link system, cruise con-6 trol system A/C 10 A Air conditioning system 7 PS/HTR 20 A Climate control seat system 8 PP/SFAT 2 30 A Front seat adjustment 9 **RR SFAT** 30 A Rear seat adjustment 10

	Fuse	Ampere	Circuit
11	P P/SEAT 1	30 A	Front seat adjustment
12	P RR S/HTR	30 A	Climate control seat system
13	PIG2	5 A	Tilt and telescopic steering, smart access system with push-button start, meters and gauges, electric power control system, Lexus link system
14	PRR-IG2	5 A	On-board diagnosis system, Lexus link system
15	P MPX-B	10 A	Power door lock system, front seat adjustment, rear seat adjustment, VGRS, smart access system with push-button start, starter system, intuitive parking assist
16	AIR SUS	20 A	Electronically modulated air suspension system
17	AM2	10 A	Power door lock system
18	RADIO NO.1	20 A	Air conditioning system, navigation system, Lexus link system
19	PMG	5 A	Electric power control system
20	P-D/C CUT	5 A	Headlight switch, windshield wiper and washer, horn, tilt and telescopic steering, power windows, power door lock system, door sunshade, rear sun- shade, rear seat adjustment, steering wheel switches
21	PDOOR 2	10 A	Power door lock system
22	P RR DOOR	25 A	Interior lights, power door lock system, power windows

4-3. Do-it-yourself maintenance

Fuse		Ampere	Circuit
23	PDOOR1	25 A	Interior lights, outside rear view mir- ror, power door lock system, power windows, outside rear view mirror defogger
24	AMP	30 A	Audio system

■ Trunk



CLY43AD166

	Fuse	Ampere	Circuit
1	RR-IG1-3	10 A	Climate control seat system
2	RR-IG1-4	10 A	Rear seat adjustment
3	RR-IG1-2	10 A	Power door lock system, cool box, air conditioning system
4	RR-IG1-1	5 A	Capacitor, brake system, rear seat adjustment
5	RR-ACC	5 A	Audio system, rear seat entertainment system
6	RR-CIG	15 A	Cigarette lighter
7	AC100/115V	15 A	Power outlet

	Fuse	Ampere	Circuit
8	RLSEAT	30 A	Rear seat adjustment
9	B/ANC	10 A	Shoulder anchor
10	RR S/SHADE	10 A	Rear sunshade
11	PSB	30 A	Pre-collision seat belt
12	PTL	30 A	Power trunk opener and closer
13	FUEL OPN	15 A	Fuel filler door opener, power trunk opener and closer
14	RR MPX-B1	10 A	Audio system, rear seat entertainment system, power trunk opener and closer
15	RR MPX-B 2	5 A	Power door lock system, rear seat adjustment, interior lights, power trunk opener and closer, alarm
16	IGCT 3	5 A	
17	BATT FAN	20 A	Electric cooling fan
18	B-FAN RLY	5 A	Electric cooling fan
19	RR ECU-B	5 A	Seat belt buckle lights, trunk light
20	ABS MAIN 4	10 A	Capacitor
21	STOP LP1	10 A	Stop lights, back-up lights
22	STOP LP 2	10 A	Stop lights, high-mounted stoplights
23	TAIL	5 A	Tail lights, license plate lights
24	E-PKB	30 A	Brake system

■ After a fuse is replaced

- If the lights do not turn on even after the fuse has been replaced, a bulb may need replacement. $(\rightarrow P. 549)$
- If the replaced fuse blows again, have the vehicle inspected by your Lexus dealer.

If there is an overload in the circuits.

The fuses are designed to blow before the entire wiring harness is damaged.

A CAUTION

■ To prevent system breakdowns and vehicle fire

- Observe the following precautions.
 Failing to do so may cause damage, and possibly a fire or injury.
- Never use a fuse of a higher amperage rating than indicated, or use any other object in place of a fuse.
- Always use a genuine Lexus fuse or equivalent.
 Never replace a fuse with a wire, even as a temporary fix.
 This can cause extensive damage or even fire.
- Do not modify fuses or the fuse box.

⚠ NOTICE

■ Before replacing fuses

Have the cause of electrical overload determined and repaired by your Lexus dealer.

■ Vertical movement adjusting bolts



- Adjustment bolt A
- Adjustment bolt B
- Adjustment bolt C

■ Before checking the headlight aim

- Make sure the vehicle has a full tank of gas and the area around the headlight is not deformed.
- STEP 2 Park the vehicle on level ground.
- STEP 3 Sit in the driver's seat.
- STEP 4 Bounce the vehicle several times.

Adjusting the headlight aim



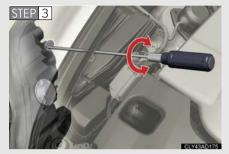
Turn bolt A in either direction using a Phillips-head screwdriver.

Remember the turning direction and the number of turns in mind.



Turn bolt B the same number of turns and in the same direction as step 1 using a Phillips-head screwdriver.

Remember the turning direction and the number of turns in mind.



Turn bolt C the same number of turns and in the same direction as step 1 and 2 using a Phillipshead screwdriver.

If the error is over the value specified above, take the vehicle to your Lexus dealer to adjust the headlight aim

4-3. Do-it-yourself maintenance **Light bulbs**

You may replace the following bulbs yourself. For more information about replacing other light bulbs, contact your Lexus dealer.

- Prepare a replacement light bulb.

 Check the wattage of the light bulb being replaced. $(\rightarrow P. 615)$
- \blacksquare Remove the engine compartment cover.
 - →P. 496
- Front bulb locations





Replacing light bulbs

■ Headlight high beams

STEP 1 When replacing the bulbs:

► Left side

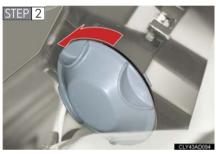


Remove the securing bolt and move the washer fluid filler opening.

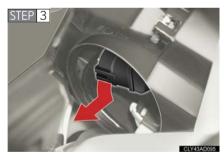
► Right side



Remove the securing bolts and nut, and move the fuse block.



Turn the cover counterclockwise and remove it.



Turn the bulb base counterclockwise.



Unplug the connector while depressing the lock release.

■ Front fog lights



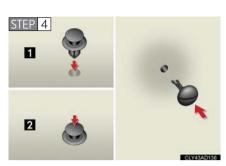
Remove the fender liner bolt and clips, and then remove the fender liner.



Turn the bulb base counterclockwise.



Unplug the connector while depressing the lock release.



Install the bolt and clips.

■ Front turn signal lights

STEP 1 When replacing the bulbs:

► Left side



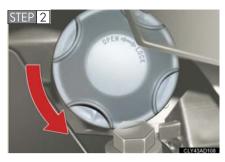
Remove the securing bolt and move the washer fluid filler opening.

► Right side

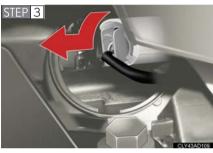


Remove the securing bolts and nut, and move the fuse block.

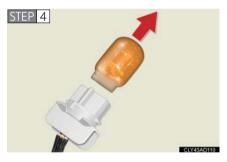
4-3. Do-it-yourself maintenance



Turn the cover counterclockwise and remove it.

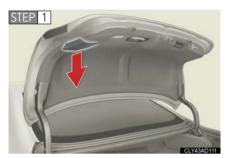


Turn the bulb base counterclockwise.



Remove the light bulb.

■ Back-up lights



Open the trunk door and remove the cover.

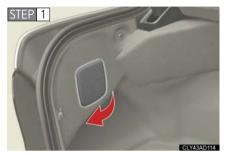


Turn the bulb bases counterclockwise.

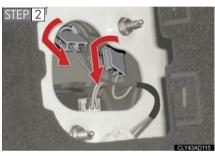


Remove the light bulb.

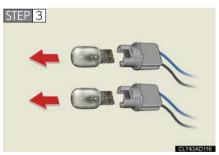
■ Rear turn signal lights



Open the trunk door and remove the cover.



Turn the bulb bases counterclockwise.



Remove the light bulbs.

■ Lights other than the above

If any of the lights listed below has burnt out, have it replaced by any authorized Lexus dealer or repairer, or another duly qualified and equipped professional.

- Headlight low beams
- Parking lights
- Side turn signal lights
- Side marker lights
- Stop/tail lights
- Tail lights
- High mounted stoplight
- License plate lights

■ Condensation build-up on the inside of the lens

Contact your Lexus dealer for more information in the following situations. Temporary condensation build-up on the inside of the headlight lens does not indicate a malfunction.

- Large drops of water are built up on the inside of the lens.
- Water has built up inside the headlight.

■ Discharge headlights

If voltage to the discharge bulbs is insufficient, the bulbs may not come on, or may go out temporarily. The discharge bulbs will come on when normal power is restored.

■ LED stop lights and high mounted stoplight

The stop lights and high mounted stoplight consists of a number of LEDs. If any of the LEDs burn out, take your vehicle to your Lexus dealer to have the light replaced.

CAUTION

■ Replacing light bulbs

- Turn off the headlights. Do not attempt to replace the bulb immediately after turning off the headlights.
 - The bulbs become very hot and may cause burns.
- Do not touch the glass portion of the light bulb with bare hands. Hold the bulb by the plastic or metal portion.
 - If the bulb is scratched or dropped it may blow out or crack.
- Fully install light bulbs and any parts used to secure them. Failing to do so may result in heat damage, fire, or water entering the headlight unit. This may damage the headlights or cause condensation to build up on the lens.
- Do not attempt to take apart or repair the low beam discharge headlight bulbs, connectors, power supply circuits, or related components. Doing so could result in electric shock and serious injury or death.

■ Discharge headlights

- Contact your Lexus dealer before replacing discharge headlights (including light bulbs).
- Do not touch the high-intensity discharge headlight's high voltage socket when the headlights are turned on.
 - An extremely high voltage of 20000 V will be discharged and could result in serious injury or death by electric shock.

■ To prevent damage or fire

Make sure bulbs are fully seated and locked.